These copolymers are characterized by a density of between 0.860 and 0.904 g/cm^3, preferably from 0.865 to 0.902 g/cm^3, and by a composition distribution index greater than 45 %, said index being defined as the percentage by weight of the copolymer molecules having an α-olefin content of up to 50 % of the total average molar content of α-olefin. These copolymers preferably have the following monomer composition: 75-97 mol%, preferably 90-95 mol%, of ethylene; 3-25 mol%, preferably 5-10 mol%, of α-olefin; 0-5 mol%, preferably 0-2 mol%, of a diene. The α-olefin is preferably chosen from propylene, 1-butene, 1-hexene, 1-octene and the like. Products of this type are commercially available under the tradenames Engage® from Du Pont-Dow Elastomers and Exact® from Exxon Chemical.

The ethylene copolymers obtained by single-site catalysis are preferably used as a mixture with a crystalline propylene homopolymer or copolymer, as described, for example, in the abovementioned European patent application No. 97121042.2, or with an ethylene homopolymer or copolymer which has a density of between 0.905 and 0.970 g/cm^3, preferably between 0.910 and 0.940 g/cm^3, as described, for example, in European patent application No. 98118194.4 filed on 25.9.98 in the name of the Applicant, or alternatively in US patent 5,707,732. In particular, the polymer base preferably comprises from 5 to 60 % by weight, more preferably from 10 to 45 % by weight, of a propylene or ethylene homopolymer or copolymer as defined above, and from 40 to 95 % by weight, more preferably from 55 to 90 % by weight, of an ethylene copolymer obtained by single-site catalysis, the percentages being relative to the total weight of the polymeric components (a) and (b).

A coupling agent capable of increasing the interaction between the active groups of the flame-retardant filler and the polymer chains may be added to the mixture in order to enhance the compatibility

between the flame-retardant filler and the polymer matrix. This coupling agent can be chosen from those known in the art, for example: saturated silane compounds or silane compounds containing at least one ethylenic unsaturation; epoxides containing an ethylenic unsaturation; monocarboxylic acids or, preferably, dicarboxylic acids having at least one ethylenic unsaturation, or derivatives thereof, in particular anhydrides or esters.

Examples of silane compounds which are suitable for this purpose are: γ-methacryloxypropyltrimethoxysilane, allyltrimethoxysilane, allyltriethoxysilane, allylmethyldimethoxysilane, allylmethyldiethoxysilane, methyltriethoxysilane, methyltris(2-methoxyethoxy)silane, dimethyldiethoxysilane, vinyltris(2-methoxyethoxy)silane, vinyltrimethoxysilane, vinylmethyldimethoxysilane, vinyltriethoxysilane, octyltriethoxysilane, isobutyltriethoxysilane, isobutyltrimethoxysilane and the like, or mixtures thereof.

Examples of epoxides containing an ethylenic unsaturation are: glycidyl acrylate, glycidyl methacrylate, monoglycidyl ester of itaconic acid, glycidyl ester of maleic acid, vinyl glycidyl ether, allyl glycidyl ether and the like, or mixtures thereof.

Monocarboxylic or dicarboxylic acids, having at least one ethylenic unsaturation, or derivatives thereof, which can be used as coupling agents are, for example: maleic acid, maleic anhydride, fumaric acid, citraconic acid, itaconic acid, acrylic acid, methacrylic acid and the like, and anhydrides or esters derived from these, or mixtures thereof. Maleic anhydride is particularly preferred.

The coupling agents can be used as they are or pregrafted onto a polyolefin, for example polyethylene or copolymers of ethylene with an α-olefin, by means of a radical reaction (see for example patent EP-530,940).

The amount of coupling agent grafted is generally between 0.05 and 5 parts by weight, preferably between 0.1 and 2 parts by weight, relative to 100 parts by weight of polyolefin. Polyolefins grafted with maleic anhydride are available as commercial products known, for example, under the brand names Fusabond® (Du Pont), Orevac® (Elf Atochem), Exxelor® (Exxon Chemical), Yparex® (DSM), etc.

Alternatively, the coupling agents of carboxylic or epoxide type mentioned above (for example maleic anhydride) or the silanes with ethylenic unsaturation (for example vinyltrimethoxysilane) can be added to the mixture in combination with a radical initiator so as to graft the compatibilizing agent directly onto the polymer matrix. An organic peroxide such as tert-butyl perbenzoate, dicumyl peroxide, benzoyl peroxide, di-tert-butyl peroxide and the like can, for example, be used as initiator. This method is described, for example, in patent US-4,317,765, in Japanese patent application JP-62-58774 or alternatively in the abovementioned European patent applications Nos. 97121042.2 and 98118194.4.

The amount of coupling agent to be added to the mixture can vary mainly depending on the type of coupling agent used and on the amount of flame-retardant filler added, and is generally between 0.01 and 5%, preferably between 0.05 and 2%, by weight relative to the total weight of the base polymer mixture.

Other conventional components such as antioxidants, processing coadjuvants, lubricants, pigments, other fillers and the like can be added to the compositions according to the present invention.

Conventional antioxidants which are suitable for this purpose are, for example:

polymerized trimethyldihydroquinoline, 4,4'-thiobis (3-methyl-6-tert-butyl)phenol; pentaerythryl tetra-[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate], 2,2'-